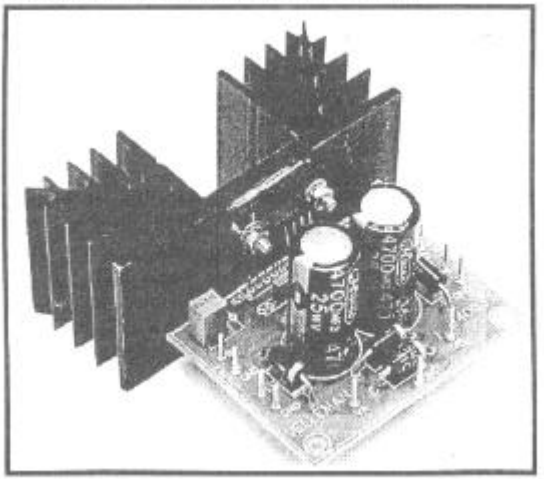
#0839

velleman-kit HIGH-Q

Skill level : 1

2 x 25W STEREO AMPLIFIER K4003

- Total music output power : 2 x 25W / 4ohm
- RMS output power : 2 x 15W / 4ohm ; 2 x 10W / 8ohm
- Total harmonic distortion : 0.07% (1W / 1KHz)
- Channel separation : 70dB
- Power bandwidth : 7 -60KHz (-3dB)
- Signal / noise ratio : 98 dB (A weighted)
- Input sensitivity : 300mV / 20Kohm
- Short circuit and overload protected (max. 1h)
- Supply voltage : 2 x 12 VAC / 2A
- Dimensions : 69 x 51 mm (2.72" x 2.01")



While the soldering iron is heating, read this first !

You want to enjoy your Velleman Kit as quick as possible, these hints will assist you !
First, take your time. Hasty jobs often result in disappointments. Make sure your workspace is wide, clean and well lit. Collect all the necessary tools you might need for the assembly. Take care, while unpacking that nothing is left in the wrapping or boxes, such as small parts, manuals and leaflets. Please check if all components are present. Use the supplied partlist as a guide. In case there is something missing or damaged, return the Kit to your dealer. Read all supplied manuals and notes carefully before you start constructing...

The Velleman Kit Warranty

Please read this carefully. In most cases, you can easily solve problems yourself. This text tells you all about.

The Kit, you have built or intend to build, was design by a team of highly skilled design engineers. Before their design reaches the customer, it has been tested and re-tested over and over again. This procedure guarantees you that every design actually works, when it is put together in the right way. But what if something does go wrong ?

Avoid unnecessary expenses and loss of time ! Examine the whole circuit closely. An even better procedure is to let someone else do this for you. Every tiny detail is important. Are all components put in the right place and correctly oriented. Watch out for bad or forgotten solder joints and short-circuits ! What about the power supply ? Is it correct and present ? Does the Kit require special calibration or adjustment ? Do the possible external devices such as computers, audio sources or power circuits match the Kit specifications ?

When all the above did not bring you any closer to a solution, start thinking of a defective part or parts. Semiconductors like transistors, FET's, IC's and processors, although very reliable do not support abuse. You can send us suspect semiconductors for inspection and eventual exchange but keep in mind. Our experienced technicians can tell the difference between a defective and a fried transistor, and in several cases a stamp is much more expensive than a replacement semiconductor bought at the local store.

Any Velleman-Kit if defective will be repaired or replaced at our option within 30 days of purchase.
Simply return it to the place of purchase with proof of purchase.

K4003 2 X 30W STEREO AMPLIFIER

INTRODUCTION

This small amplifier is constructed around the TDA1521 IC, and offers a maximum output of 2 x 15 Wrms at 4 Ohm, or 2 x 10 Wrms at 8 Ohm.
The IC is completely thermally and short-circuit protected.
An additional rectifier and smoothing filter are unnecessary, as an alternating current supply can be directly connected.

TECHNICAL SPECIFICATIONS

- Musical power output: 2 X 30W / 4 Ohm
- RMS output: 2 X 15W / 4 Ohm or 2 X 10W / 8 Ohm
- Total harmonic distortion: 0.07% (1W/1 KHz)
- Channel separation: 70dB
- Frequency reproduction: 7 Hz to 60 KHz (-3dB)
- Signal/noise ratio: 98dB (Weighted A)
- Input sensitivity: 300mV / 100 KOhm
- On/off switch noise suppression
- Protected from overload and short-circuit (max. 1h.)
- Supply Voltage: 2 X 12 VAC / 2A (50W transformer)

We reserve the right to make modifications.

2 X 30W STEREO AMPLIFIER ASSEMBLY AND TOOLS

Check that you have all the parts.

RECOMMENDED TOOLS

Miniature 25W soldering iron
Multicore solder
Soldering iron stand and sponge

ASSEMBLY

1. RESISTORS

Resistors are not polarized, so they can be inserted in either direction. Only the three primary color bands are mentioned. There may be a fourth band which can be ignored.

Inventory	Sequence of assembly	Reference	Part number / description
○	○	R1 and R2	8.2Ω (gray-red-gold)

2. DIODES

Align the banded end with the band drawn on the PCB board.

Inventory	Sequence of assembly	Reference	Part number / description
○	○	D1 to D4	Small signal diodes from series 1N5400 .. 5408

3. PCB TABS

Inventory	Sequence of assembly	Part number / description
○	○	Mount 11 PCB tabs for : LEFT IN & GND, RIGHT IN & GND ; 2 x LS : 2 x GND ; VA ; VB ; GND

4. CAPACITORS

These capacitors are not polarized, so they can be inserted either way.

Inventory	Sequence of assembly	Reference	Part number / description
○	○	C1 and C2	22nF (sometimes marked as 223)
○	○	C3	100nF (sometimes marked as 104 or µ1)
○	○	C4 and C5	1µF (sometimes marked as 105)

5. THE ELECTROLYTIC CAPACITORS

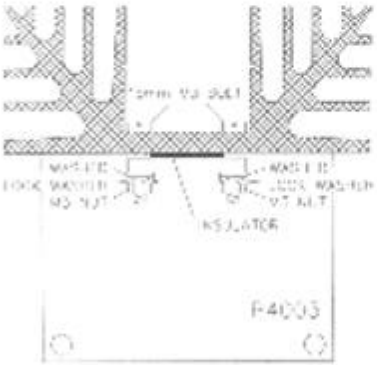
Note carefully the positive leads before you fit the capacitor into the PCB board.
Pay attention to the polarity !

Inventory	Sequence of assembly	Reference	Part number / description
○	○	C6 and C7	4700µF (Pay attention to the polarity !)

6 INTEGRATED CIRCUIT (IC)

Mount the IC with the metal back pointing at the edge of the circuit board. Mount it sufficiently high so that the pins do NOT need to be trimmed.. Then mount the IC against the heatsink, as indicated in the diagram. Insert mica insulator (covered on both sides with heat-conductive paste) between the IC and the heatsink.

Inventory	Sequence of assembly	Reference	Part number / description
○	○	IC1	TDA1521 (See figure)



CONNECTION

Make connections as indicated in figure 2.0. Watch the polarity of the loudspeakers.
If a ring-core transformer is used, it is possible that the 0V (GND) connection has two leads.
Make all connections before switching on.

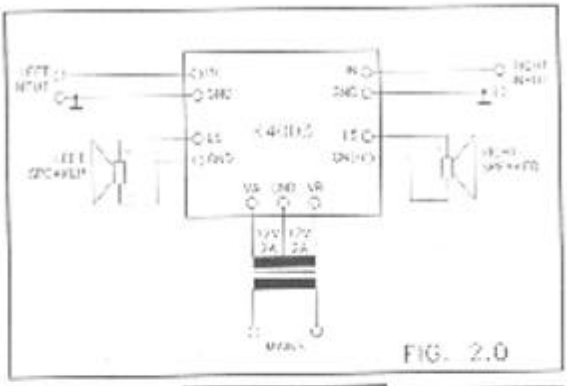
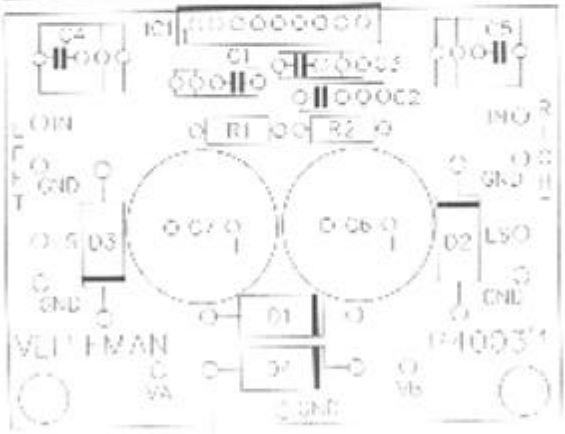
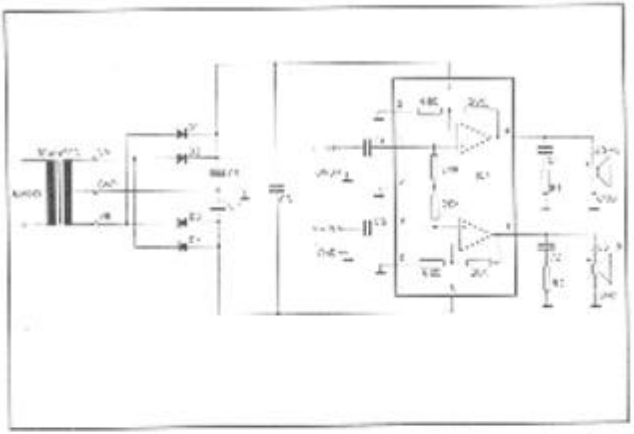


FIG. 2.0



2 x 25 W Stereo amplifier
PCB layout and
component placement



2 x 25 W Stereo Amplifier
Schematics